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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
DOTE, JANIS L	

ART UNIT	PAPER NUMBER
1756	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/721,069	ITOH, MUNEHARU	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5 and 6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on May 1, 2006, has been entered.

2. The examiner acknowledges the amendments to claim 1 and 5 set forth in the amendment filed on May 1, 2006. Claims 1-3, 5, and 6 are pending.

The "Amendment to the specification" section filed on Jun. 27, 2006, has been entered.

3. The "Amendment to the specification" section filed on May 1, 2006, did not comply with 37 CFR 1.121 for the reasons set forth in the Notice of non-compliant amendment mailed on Jun. 6, 2006. Accordingly, that "Amendment to the specification" section has not been entered.

4. The rejection of claims 1-3, 5, and 6 under 35 U.S.C. 112, first paragraph, set forth in the office action mailed on Sep. 7, 2005, paragraph 7, has been withdrawn in response to the amendment to claim 1 filed on May 1, 2006.

5. The disclosure is objected to because of the following informalities:

The use of trademarks, e.g., "Henschel mixer" [sic: HENSCHEL MIXER] at page 25, line 7, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicant should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

Applicant's arguments filed on May 1, 2006, have been fully considered but they are not persuasive.

Applicant asserts that the amendment filed on Jun. 27, 2006, overcomes the objection. However, as discussed above,

that amendment did not capitalize all of the trademarks disclosed in the instant specification. Accordingly, the objection stands.

6. The examiner notes that the instant specification determines the "average circle degree" recited in the instant claims by the formula disclosed at page 10, paragraphs 0025-0026. The specification further discloses in paragraph 0026 that the average circle degree may be measured with "flow type particle projection image analyzers, such as FPIA-1000 or FPIA-2000, products of Sysmex Corporation."

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2001/0033982 A1 (Ishikawa) combined with US 6,897,001 B2 (Mizoe).

Ishikawa discloses a toner comprising: (1) colored polymeric core particles comprising a binder resin, a colorant, and a wax, i.e., a parting agent, coated with a layer of particulate resin; and (2) externally added hydrophobic silica particles. The toner has a volume-average particle diameter of

7.8 μm and a 50% circular degree of 0.98. The toner has an absolute charge value of 28 μC/g in a toner layer formed on a developing roller. Paragraphs 0184-0185; example 6 in paragraphs 0305 to 0328; and the table at page 30, example 6. The Ishikawa toner meets the toner colored polymer particle compositional limitations recited in instant claims 1 and 2. The Ishikawa volume-average particle diameter meets the particle diameter recited in instant claim 1.

The Ishikawa 50% circular degree of 0.98 is within the numerical range of the average circle degree of 0.95-0.995 recited in instant claim 1. According to Ishikawa, the 50% circular degree is determined using a flow type particle image analysis apparatus FPIA-2000 produced by Sysmex Corporation, and corresponds to the cumulative particle size value at 50% of the value determined by the formula "the circumference length of circle having the same area as that of projected area of particle/circumference length of projected image of particle." Paragraphs 0175-0177. The Ishikawa 50% circular degree appears to be determined in the same manner as the "average circle degree" recited in instant claim 1. See paragraph 6, supra. Accordingly, it is reasonable to presume that the Ishikawa 50% circular degree of 0.98 meets the average circle degree recited

in instant claim 1. The burden is on applicant to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Ishikawa does not determine the toner absolute charge by "aspirating and collecting the toner with an aspirating charge amount analyzer" as recited in instant claim 1. Rather, Ishikawa determines the charge by a "blowoff" method. Ishikawa, paragraph 0185. However, as discussed supra, the Ishikawa toner has an absolute charge value of 28 μC/g, which is within the absolute charge value range of 20 to 70 μC/g recited in instant claim 1. There is no evidence in the present record showing that the Ishikawa toner has an absolute charge value outside of the range recited in instant claim 1 as determined by the method recited in instant claim 1. Thus, it is reasonable to presume that the toner disclosed by Ishikawa has an absolute charge value in the range of 20 to 70 μC/g as determined by the method recited in the instant claim. Applicant has the burden to prove otherwise. Fitzgerald, supra.

Ishikawa does not explicitly state that the toner has a core-shell structure as recited in instant claim 3. However, as discussed supra, the Ishikawa toner comprises colored polymeric core particles coated with a layer of particulate resin. Example 6 in paragraphs 0305 to 0328. The Ishikawa cores are obtained by agglomerating primary polymer resin particles

comprising a wax and colorant particles. The particles in the agglomerated particles are "fused bonded" to each other. See Fig. 2; paragraphs 0139 and 0323; and the table at page 29, example 6. The fused-bonded cores in example 6 are coated with a layer of particulate resin. The weight ratio of particulate resin to the primary resin particles is 11.1 w/w%. The value of 11.1 w/w% was determined from the information provided in paragraph 0331. As seen in Ishikawa's Fig. 2, the fused-bonded cores are coated with a layer of particulate resin. According to Ishikawa, a coating amount of the particulate resin is preferably 3 w/w% or more, preferably of 5 w/w% or more of primary polymer particles. This range of coating amount provides "coating effects." Paragraph 0138. Because the weight ratio of particulate resin to the primary polymer particles is 11.1%, it is reasonable to presume that the fused-bonded core particles in example 6 are coated with a layer of particulate resin, i.e., a shell. Accordingly, it is reasonable to presume that the toner in example 6 of Ishikawa has a core-shell structure as recited in instant claim 3. The burden is on applicant to prove otherwise. Fitzgerald, supra.

Ishikawa does not disclose that the toner comprises an external additive present on the surface of the toner particle as recited in instant claim 1. However, as discussed supra, the

toner in example 6 of Ishikawa comprises externally added hydrophobic silica particles. Ishikawa does not limit the type of external additives used. Paragraphs 0120-0121.

Mizoe discloses a toner comprising externally added hydrophobic silica particles and tungsten-containing tin oxide particles having a volume average particle size of 0.8 μm. See fine particles A-3 at col. 48, lines 33-40; and toner A-3 at col. 50, lines 46-57. According to Mizoe, the toner is capable of stably producing high-quality images in continuous image formation processes regardless of environmental changes. Col. 9, lines 43-48, and Table 1 at col. 51, toner A-3. Mizoe teaches that the tungsten-containing tin oxide particles are preferably "present at the toner particle surface at a rate of at least 0.3 particle, more preferably 1.0 to 50 particles . . . per one toner particle." Col. 17, lines 1-4. In toner A-3, the ratio of tungsten-containing tin oxide particles attached to the surface of the toner particles is 10.5 particles per one toner particle. Col. 50, lines 50-51. The number of particles of 10.5 per one toner particle is within the number range of 10 to 500 per single colored particle recited in instant claim 1. According to Mizoe, "[b]elow 0.3 particle, the flowability-improving effect is liable to be lowered. Col. 17, lines 4-5.

Mizoe does not explicitly disclose that the tungsten-

containing tin particles on the surface of the toner have a particle diameter in the range of 0.1 to 3 μm as recited in instant claim 1. However, as discussed supra, the Mizoe tungsten-containing tin oxide particles in toner A-1 have a volume average particle size of 0.8 μm, which is within the particle size range of 0.1 to 3.0 μm recited in instant claim 1. Thus, it is reasonable to presume that the tungsten-containing tin particles on the surface of toner have a particle diameter as recited in instant claim 1. The burden is on applicant to prove otherwise. Fitzgerald, supra.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Mizoe, to externally add the Mizoe tungsten-containing tin oxide particles having a volume average particle size of 0.8 μm to the toner particles in example 6 of Ishikawa as taught by Mizoe, such that the resultant toner comprises from 10.5 to 50 tungsten-containing tin oxide particles per one toner particle. That person would have had a reasonable expectation of successfully obtaining a toner that stably produces high-quality images in continuous image formation processes regardless of environmental changes as disclosed by Mizoe.

Ishikawa does not disclose that its toner is a toner "for an image-forming apparatus, which has a cleaning means with a

cleaning blade to remove a residual toner remaining on a surface of a photoconductive member after transfer" as recited in instant claim 1. However, that recitation is merely a statement of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963). As discussed above, the toner rendered obvious over the combined teaching of Ishikawa and Mizoe meets the toner compositional limitations recited in the instant claims. Accordingly, the recitation "for an image forming apparatus, which has a cleaning means with a cleaning blade . . . " does not distinguish the toner recited in the instant claims from the toner rendered obvious over the combined teachings of the cited prior art.

Applicant's arguments filed on May 1, 2006, have been fully considered but they are not persuasive.

Applicant states that Ishikawa determines the toner charge amount by a blow-off method rather than by the aspiration method recited in instant claim 1. Applicant asserts that it is well known that the charge amounts determined by the aspiration

method and the method of Ishikawa are different from each other, as demonstrated in the Rule 132 declaration, which was executed by Muneharu Itoh on Feb. 21, 2006, filed on Mar. 3, 2006.

Applicant's arguments are not persuasive. The Rule 132 declaration does not show that the Ishikawa toner has an absolute charge value outside of the range determined by the method recited in claim 1 because the declaration does not compare to Ishikawa. None of the five examples in the declaration exemplify the Ishikawa toner in example 6 of Ishikawa. The toner particles in all of five examples of the declaration are obtained by emulsion polymerizing a monomer mixture comprising a charge control polymeric resin. The Ishikawa toner particles in example 6 are obtained by an agglomeration method of agglomerating polymer particles and colorant particles to form agglomerates and forming a layer on the surface of the agglomerates comprising a particulate wax and a charge control agent. The charge control agent in the Ishikawa toner is on the surface of the toner particles, not dispersed in the toner particles as exemplified in the five examples in the declaration. The Ishikawa toner particles are within the toner colored polymer particle compositional limitations recited in instant claim 1. Thus, none of the five

examples in the declaration appears to be a probative comparison to Ishikawa.

Moreover, as noted by applicant in his response filed on May 1, 2006, page 9, the blow-off method determines the toner charge by mixing the toner with a carrier to charge the toner by friction and measuring the charge amount of the toner. However, the declaration states that in the blow-off method, frictional electrification was applied to the fine silica particles in the toner, not to the toner as a whole; and that the "charge amount was measured by blowing the carrier and the fine silica particles by nitrogen gas," not the toner. Thus, it is not clear what has the charge amount measured by the blow-off method reported in the table at page 7 of the declaration.

Furthermore, in the response filed on Jun. 16, 2005, page 14, applicant states that the "charged amount of the toner is different depending on the kind of carrier used in blow-off method." As shown in US 6,653,040 B2 (Ohba), the toner charge amount determined by the blow-off method appears to depend on the composition of the coating on the carrier and on the mixing time between the toner and the carrier. See Ohba, Table 3 at col. 16. Table 3 in Ohba shows that the toner charge amounts (after 3 minutes of mixing the toner with the carrier) for the particular toner A can range from +7.5 to -0.7 μC/g when mixed

with different carriers. Table 3 also shows that the toner charge amount of the particular toner can change from 2.9 to 4.0 μC/g when the mixing time between the toner and the carrier is increased from 3 minutes to 10 minutes. Thus, it appears that in the blow-off method, the toner absolute charge value is dependent on the composition of the carrier as well as on the mixing time between the toner and the carrier. Thus, because applicant has not compared adequately to Ishikawa, it is not clear whether the results reported in the declaration are applicable to the toner disclosed by Ishikawa. Accordingly, applicant has not met his burden to show that the Ishikawa toner does not have an absolute charge value within the range of 20 to 70 μC/g as determined by the method recited in instant claim 1.

Applicant further asserts that in the Mizoe toner A1, the number of external particles on the surface of the toner is 5, which is outside the range of 10 to 500 recited in instant claim 1. Applicant also asserts that the prior art does not suggest or teach that the number of external particles as recited in instant claim 1 provides a toner as having excellent properties such as cleaning performance.

However, as noted by applicant and in the above rejection, Mizoe teaches that its tungsten-containing tin oxide particles are preferably "present at the toner particle surface at a rate

of . . . 1.0 to 50 particles . . . per one toner particle." The range of 1.0 to 50 particles per toner particle overlaps the range of 10 to 500 recited in instant claim 1. Furthermore, as discussed in the above rejection, in toner A-3 of Mizoe, the ratio of tungsten-containing tin oxide particles attached to the surface of the toner particles is 10.5 particles per one toner particle. The ratio of 10.5 external particles per one toner particle is within the number range of 10 to 500 per single colored particle recited in instant claim 1. Moreover, as discussed in the above rejection, Mizoe provides reason, suggestion, and motivation for a person having ordinary skill in the art to externally add the Mizoe tungsten-containing tin oxide particles to the Ishikawa toner particles. The reasons for combining the references do not have to be those of applicant.

Accordingly, for the reasons discussed in the rejection above, the toner recited in the instant claims is rendered obvious over the combined teachings of the prior art.

9. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/58790 (Masuo), as evidenced by applicant's admissions at page 7, line 27, page 9, lines 23-26,

and page 10, lines 7-8, of the instant specification (applicant's admissions I), combined with Mizoe.

US 6,562,535 B1 (US'535), filed under 35 U.S.C. 371, issued from the national stage of the WO application of Masuo, and therefore must have been an accurate English-language translation of the WO application of Masuo. See US'535, the translation of Masuo, for cites.

Masuo discloses a toner comprising: (1) colored polymeric core particles comprising a binder resin, a colorant, dipentaerythritol hexamyristate, and a charge control resin, covered with a polymeric shell; and (2) externally added hydrophobic silica particles. The toner has a volume-average particle diameter of 6.3 μm and an absolute charge value of 36 μC/g in a toner layer formed on a developing roller in an environment of "normal" temperature of 23°C and "normal" humidity of 50% relative humidity. US'535, col. 21, lines 49-51 and 53-57; example 10 at cols. 31-33; and Table 5 at col. 34, example 10. The charge control resin has a weight average molecular weight of 12,000, which is within the weight average molecular weight range of 2,000 to 50,000 recited in instant claim 6. Col. 31, lines 45-47, and Table 5 at col. 34, example 10. The instant specification at page 7, line 27, identifies dipentaerythritol hexamyristate as a parting agent.

The Masuo toner meets the toner colored polymer particle compositional limitations recited in instant claims 1-3 and 6. The Masuo volume-average particle diameter meets the particle diameter recited in instant claim 1.

As discussed above, the Masuo toner has an absolute charge value of 36 μC/g. Said charge value is within the absolute charge value range of 20 to 70 μC/g recited in instant claim 1. Masuo does not expressly state that the toner absolute charge is measured by "aspirating and collecting the toner with an aspirating charge amount analyzer" as recited in instant claim 1. Rather, Masuo teaches that the toner absolute charge is determined by "sucking" the toner from a developing roller into a "suction type charge level meter to measure a charge level per unit weight from the charge level and weight of the toner sucked at this time." US'535, col. 21, lines 52-57. The Masuo absolute charge determination appears to be the same or substantially the same as the method recited in instant claim 1. There is no evidence in the present record showing that the Masuo toner has an absolute charge value outside of the range recited in instant claim 1 as determined by the aspirating method recited in instant claim 1. Thus, it is reasonable to presume that the toner disclosed by Masuo has an absolute charge value in the range of 20 to 70 μC/g as determined by the method

recited in instant claim 1. Applicant has the burden to prove otherwise. Fitzgerald, supra.

Masuo does not disclose that the toner in example 10 has an average circle degree as recited in instant claim 1. However, Masuo discloses that the toner in example 10 has a spheriodicity (dl/ds) of 1.12. See Table 5, example 10. Masuo discloses that the toner particles are "substantially spherical" when the spheriodicity of the toner particles, which is represented by a ratio (dl/ds) of the length (dl) to the breath (ds) of the toner particle, is preferably 1 to 1.3. US'535, col. 18, lines 30-33. Thus, if the toner particles are perfect spheres the value of dl/ds would be 1. Masuo discloses that the toner in example 10 reproduces images of high resolution, wherein the images have a resolution of "one-dot line" and "one-dot white line." US'355, col. 3, lines 55-56; col. 23, lines 14-20; and Table 5, example 10. This property appears to be the property sought by applicant. The instant specification discloses that "[i]f the average circle degree is below 0.95, the resultant toner is poor in fine line reproduction at a L/L condition . . . a N/N condition . . . and a H/H condition . . ." Specification, page 9, lines 23-26. The instant specification at page 10, lines 7-8, also discloses that "[I]f the toner particles are perfectly spherical, the average circle degree equals to 1.

Because the toner particles in example 10 of Masuo are "substantially spherical" and appear to have the property sought by applicant, it is reasonable to presume that the toner particles in example 10 have an average circle degree as recited in instant claim 1. The burden is on applicant to prove otherwise. Fitzgerald, supra.

Masuo does not expressly describe toners comprising an external additive present on the surface of the toner particle as recited in instant claim 1. However, as discussed supra, the toner in example 10 of Masuo comprises externally added hydrophobic silica particles. Masuo does not limit the type of external additives used. US'535, col. 19, lines 1-16. Masuo also does not limit the amount of external additives used. US'535, col. 19, lines 42-43.

Mizoe teaches the advantages of externally adding tungsten-containing tin oxide particles having a volume average particle size of 0.8 μm. Mizoe teaches that the tungsten-containing tin oxide particles are preferably "present at the toner particle surface at a rate of at least 0.3 particle, more preferably 1.0 to 50 particles . . . per one toner particle." The discussion of Mizoe in paragraph 8 above is incorporated herein by reference.

It would have been obvious for a person having ordinary

skill in the art, in view of the teachings of Mizoe, to externally add the Mizoe tungsten-containing tin oxide particles having a volume average particle size of 0.8 μm to the toner particles in the toner in example 10 of Masuo as taught by Mizoe, such that the resultant toner comprises from 10.5 to 50 tungsten-containing tin oxide particles per one toner particle. That person would have had a reasonable expectation of successfully obtaining a toner that produces high-quality images in continuous image formation processes regardless of environmental changes as disclosed by Mizoe.

Masuo does not disclose that its toner is a toner "for an image-forming apparatus, which has a cleaning means . . . " as recited in instant claim 1. However, for the reasons discussed in paragraph 8 above, the recitation in claim 1 is merely a statement of intended use. As discussed above, the toner rendered obvious over the teachings in Masuo, as evidenced by applicant's admissions I, combined with Mizoe, meets the toner compositional limitations recited in the instant claims. Accordingly, the recitation "for an image forming apparatus, which has a cleaning means with a cleaning blade . . . " does not distinguish the toner recited in the instant claims from the toner rendered obvious over the combined teachings of the cited prior art.

10. Claims 1-3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuo, as evidenced by applicant's admission at page 7, lines 27, of the instant application (applicant's admission II), combined with Mizoe and US 6,096,468 (Ohno). For the reasons discussed in paragraph 9 above, see US'535, the translation of Masuo, for cites.

Masuo combined with the teachings of Mizoe renders obvious a toner as described in paragraph 9 above, which is incorporated herein by reference. The toner particles are obtained by a suspension polymerization process. US'535, col. 32, lines 40-59.

Masuo does not explicitly disclose that the toner in example 10 has an average circle degree as recited in instant claim 1. However, Masuo discloses that it is preferred that the toner particles are "substantially spherical as demonstrated by a ratio (dl/ds) of the length (dl) to the breath (ds) [of the toner particle] of preferably 1 to 1.3." US'535, col. 18, lines 30-33. Masuo discloses that such a spherical toner can be obtained by the suspension polymerization method. Col. 18, lines 36-37. Masuo discloses that when a "substantially spherical" toner is used as a one-component developer, the "transfer efficiency of a toner image on a photosensitive member

to a transfer medium is enhanced." US'535, col. 19, lines 33-36.

Ohno discloses that when toner particles are made to have an average circularity of from 0.920 to 0.995, preferably from 0.950 to 0.995 in its circularity frequency distribution, the "toner having a small particle diameter can be greatly be improved in transfer performance . . . and also can greatly be improved in the developability of low potential latent images. Such tendencies are very effectively appear [sic] especially when a digital system of minute spot latent images are developed or when toner images are transferred many times through the intermediate transfer member to form a full-color image, bringing about a good compatibility with [sic] image forming apparatus." Col. 8, lines 43-55. The improved transfer performance disclosed by Ohno appears to be the property sought by Masuo for using "substantially spherical" toners. The Ohno average circularity is determined by a formula that is identical to the formula used in determining the average circle degree recited in instant claim 1. Ohno discloses that the average circularity is measured with the "flow type particle projection image analyzer" FPIA-1000, manufactured by Toa Iyou Denshi K.K. See Ohno, col. 9, lines 6-40, and paragraph 6, supra. Ohno also discloses that the average circularity of the toner can be

controlled by adjusting the pH of the aqueous medium in the granulation step in suspension polymerization. Col. 9, lines 1-5.

It would have been obvious for a person having ordinary skill in the art to adjust the pH in the granulation step in the suspension polymerization method used to obtain the toner particles in example 10 of Masuo as taught by Ohno, such that the resultant toner particles have an average circularity of 0.95 to 0.995 as recited in instant claim 1, and to use the resultant toner particles in the toner rendered obvious over the teachings of Masuo, as evidenced by applicant's admission II, and the teachings of Mizoe. That person would have had a reasonable expectation of successfully obtaining a toner having improved transfer performance and developability of low potential latent images as disclosed by Ohno.

Masuo does not disclose that its toner is a toner "for an image-forming apparatus, which has a cleaning means . . . " as recited in instant claim 1. However, for the reasons discussed in paragraph 8 above, the recitation in claim 1 is merely a statement of intended use. As discussed above, the toner rendered obvious over the teachings of Masuo, as evidenced by applicant's admission II, combined with Ohno and Mizoe, meets the toner compositional limitations recited in the instant

claims. Accordingly, the recitation "for an image forming apparatus, which has a cleaning means with a cleaning blade . . . " does not distinguish the toner recited in the instant claims from the toner rendered obvious over the cited prior art.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuo, as evidenced by applicant's admissions I, combined with Mizoe, as applied to claim 1, further combined with US 5,837,414 (Kitani). For the reasons discussed in paragraph 9 above, see US'535, the translation of Masuo, for cites.

Masuo, as evidenced by applicant's admissions I, combined with the teachings of Mizoe renders obvious a toner as described in paragraph 9 above, which is incorporated herein by reference. The toner in example 10 of Masuo has a volume average particle diameter of 6.3 μm. Masuo discloses that "[I]n order to enhance resolution to obtain images of high definition, it is particularly desirable that the volume average particle diameter of the toner be controlled to preferably 2 to 9 μm, more preferably 3 to 8 μm." US'535, col. 18, lines 16-20.

Masuo does not disclose that the toner in example 10 has the particle diameter distribution recited in instant claim 5.

Kitani discloses toner particles having a volume average particle size of preferably 5 to 9 μm and having a particle size distribution of 2.0 volume percent or less of particles having a particle size of 16 μm or more and 16.0 particle number of less of particles having a particle size of 5.0 μm or less. Col. 7, line 65, to col. 8, line 6. Kitani exemplifies toner particles comprising 0.1 volume percent of particles having a particle size of 16.0 μm or more and 9.01 particle number percent of particles having a particle size of 5.0 μm or less. Col. 11, lines 39-41. The Kitani volume average particle diameter overlaps the range of 3-8 μm recited in instant claim 1, and is within the teachings of Masuo. Because toner particles having a particle size of 5.0 μm or less include particles having a particle size of 4 μm or less, the amount of 9.01 particle number percent of toner particle having a particle size 5.0 μm or less meets the particle size distribution of particles having a diameter of not larger than 4 μm in an amount of 3 to 9.1 number percent recited in instant claim 5. According to Kitani, when the amount of toner particles having a particle size of 16.0 μm or more is 2.0 volume percent or more, "image sharpness is degraded." When the amount of toner particles having a particle size of 5.0 μm or less is 16.0 particle number percent or more, "transfer ratio decreases due to the increase

in the toner which is not transferred." Col. 8, lines 6-9. Thus, the prior art recognizes that volume average particle size and the particle size distributions are result-effective variables. The variation of result-effective variables is presumably within the skill of the ordinary worker in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kitani, to adjust, through routine experimentation, the particle size of toner particles in the toner rendered obvious over the teachings of Masuo, as evidenced by applicant's admission I, combined with the teachings of Mizoe, such that the resultant toner particles have a volume average diameter of 6.2 μm and comprise, for example, 9.01 particle number percent of particles having a diameter of 5.0 μm or less and 0.1 volume percent of particles having a diameter of 16 μm or more. That person would have had a reasonable expectation of successfully obtaining a toner provides sharp toner images and that has sufficient "transfer ratio" as taught by Kitani.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuo, as evidenced by applicant's admission II, combined with Ohno and Mizoe, as applied to claim 1 above, further combined with Kitani. For the reasons

discussed in paragraph 10 above, see US'535, the translation of Masuo, for cites.

Masuo, as evidenced by applicant's admission II, combined with the teachings of Mizoe and Ohno renders obvious a toner as described in paragraph 10 above, which is incorporated herein by reference.

None of cited references discloses toners having the particle diameter distribution recited in instant claim 5.

Kitani discloses toner particles having a volume average particle size of preferably 5 to 9 μm and having a particle size distribution of 2.0 volume percent or less of particles having a particle size of 16 μm or more and 16.0 particle number of less of particles having a particle size of 5.0 μm or less. Kitani exemplifies toner particles comprising 0.1 volume percent of particles having a particle size of 16.0 μm or more and 9.01 particle number percent of particles having a particle size of 5.0 μm or less. The discussions of Kitani and Masuo in paragraph 11 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kitani, to adjust, through routine experimentation, the particle size of toner particles rendered obvious over the teachings of Masuo, as evidenced by applicant's admission II, combined with teachings

of Ohno and Mizoe, such that the resultant toner particles have a volume average diameter of 6.2 μm and comprise, for example, 9.01 particle number percent of particles having a diameter of 5.0 μm or less and 0.1 volume percent of particles having a diameter of 16 μm or more. That person would have had a reasonable expectation of successfully obtaining a toner provides sharp toner images and that has sufficient "transfer ratio" as taught by Kitani.

13. Applicant's arguments filed on May 1, 2006, as applicable to the rejections set forth in paragraphs 9-12 above have been fully considered but they are not persuasive.

Applicant asserts that Masuo does not disclose the toner charge amount as recited in instant claim 1.

Applicant's assertion is not persuasive. As discussed in the rejection in paragraph 9 above, Masuo teaches that the toner absolute charge value of 36 μC/g was determined by "sucking" the toner from a developing roller into a "suction type charge level meter to measure a charge level per unit weight from the charge level and weight of the toner sucked at this time." For the reasons discussed in paragraph 9 above, the Masuo absolute charge determination appears to be the same or substantially the same as the method recited in instant claim 1. The Rule 132

declaration does not exemplify determining the absolute charge value by the method taught by Masuo. Accordingly, applicant has not met his burden to show that the Masuo toner does not have an absolute charge value in the range of 20 to 70 μC/g as determined by the method recited in instant claim 1.

With respect to the subject matter recited in instant claim 5, applicant asserts that "Mizoe et al. discloses that the toner contains 5 to 70 number% colored particles with a particle diameter of 4 μm or less" and exemplifies a ratio of 20 number%. Applicant asserts that Mizoe does not teach a toner containing a 3 to 9.1 number% colored particles with a particle diameter of 4 μm or less, as recited in instant claim 5.

Applicant's assertions regarding the teachings of Mizoe are not persuasive because applicants have not indicated, the examiner cannot find, where Mizoe teaches toners comprising 5 to 70 number% of particles having a particle diameter of 4 μm or less. Moreover, as discussed in paragraphs 11 and 12, Kitani teaches toner particles comprising 9.01 particle number percent of particles having a particle size of 5.0 μm or less, which meets the particle size distribution limitation recited in instant claim 5.

Accordingly, the rejections over the combined teachings of the cited prior art in paragraphs 9-12 stand.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLD
Aug. 16, 2006

JANIS L. DOTE
PRIMARY EXAMINER
GROUP ~~1500~~ 1700